TORONTECH

STABLE PERFORMANCE LOW TEMPERATURE INCUBATOR

Stable Performance Low Temperature Incubator – ToronCubator™ SPLT

The ToronCubator™ SPLT is a programmable laboratory incubator built for biochemical research and controlled-temperature studies that demand both precision and flexibility. Spanning five chamber sizes from 100 L to 800 L, this series of laboratory incubators operates across a 4–70 °C range and delivers tight temperature fluctuation of ±0.5 °C during heating — making it a dependable workhorse for high-throughput research labs, pharmaceutical quality control, and advanced environmental testing environments across North America.

The ToronCubator™ SPLT is a full-featured biochemical incubator engineered to meet the demands of laboratory environments that require multi-segment programmability, access-controlled operation, and long-duration incubation scheduling. The series is available in five chamber volumes — 100 L, 150 L, 250 L, 400 L, and 800 L — giving procurement teams the flexibility to match instrument capacity to laboratory throughput without oversizing or undersizing the installation.

The outer housing is constructed from cold-rolled steel with a static spray-plastic surface treatment, while the interior working chamber uses mirror-finished stainless steel for corrosion resistance and ease of cleaning. Shelving is adjustable to accommodate samples of varying heights, and each shelf supports up to 15 kg. An inner observation glass door and a transparent glass view window allow users to inspect samples without opening the main door, preserving the internal thermal environment during sensitive runs.

Built-in test ports on both sides of the chamber — 30 mm internal diameter — provide convenient pass-through access for data cables, probes, or tubing without compromising internal conditions. The integrated 220V power socket adds further versatility for peripheral instruments placed inside the chamber. A mechanical door lock combined with a screen lock and password-protected screen saver prevent unintended parameter changes in shared laboratory settings, an important feature where multiple users access the same incubators throughout the workday.

Power recovery functionality ensures that all programmed settings and run-state data are retained after any power interruption, protecting both long-cycle biochemical incubation protocols and complex multi-segment programs from data loss.

APPLICATIONS

Stable Performance Low Temperature Incubator – ToronCubator™ SPLT Applications

The ToronCubator™ SPLT covers a wide range of demanding B2B laboratory applications. Its programmable multi-segment design and wide temperature range make it adaptable for both routine and specialized incubation workflows.

- Biochemical Research: multi-phase enzyme kinetics, metabolic pathway studies, and temperature-gradient protocols requiring programmable segment control.
- Pharmaceutical QC: stability testing of biological compounds, drug formulations, and reference standards under controlled thermal conditions.
- Environmental Testing: biochemical Oxygen Demand (BOD) testing, degradation studies, and aquatic sample incubation per standard methods.
- Microbiology & Mould Studies: fungal growth assays, microbial culture incubation, and mould propagation in a stable, controlled-environment incubator.
- Food Science & Safety: shelf-life evaluation, spoilage microbiology, and fermentation trials requiring reproducible, timed thermal conditions.
- Agricultural & Plant Science: seed germination, plant pathogen studies, and soil microbiology research across extended incubation timelines.

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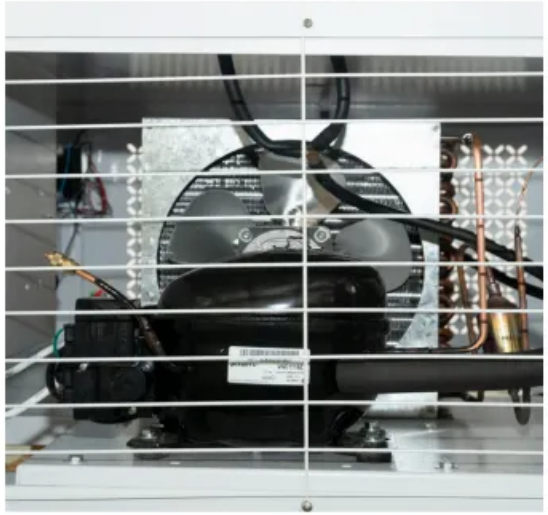
FEATURES

Stable Performance Low Temperature Incubator – ToronCubator™ SPLT

Key Features

- Cold-rolled steel housing with static spray-plastic finish; mirror stainless steel working chamber with optionally adjustable shelving
- PMMA II operating system with over-temperature alarm and built-in self-diagnosis function for continuous process monitoring
- Color LCD backlight display for clear real-time readout of temperature, program status, and operating parameters
- Screen lock timer and password-protected screen saver to prevent unintended parameter changes in shared laboratory environments
- Programmable multi-segment design supporting up to 30 segments and 99 repeatable cycles for complex thermal profile protocols
- Centrifugal fan with 6-stage speed regulation for uniform, stable air distribution throughout the working chamber
- Inner observation glass door for sample monitoring without opening the main chamber door
- Side-mounted test ports on both sides of the chamber, 30 mm internal diameter, for probe or cable pass-through access
- Reservation function (0–9999 min) and timer function (0–9999 min/h) for flexible delayed-start and timed-run scheduling
- Mechanical door lock for physical chamber security
- Built-in 220V power socket for convenient in-chamber connectivity to peripheral instruments
- Fluorescent interior lighting for sample visibility; UV light included on mould incubator variants
- Imported low-noise compressor unit with consistent, stable performance across the full operating duty cycle
- Power recovery function retains all programmed data and run-state settings after power interruption or system halt



THEORY & METHOD

Theory and Method

PMMA II Microprocessor Control

The ToronCubator™ SPLT operates on a PMMA II control platform that continuously samples the internal temperature sensor and modulates heating and cooling output to maintain the programmed set-point. Temperature resolution is 0.1 °C, with fluctuation held to ±0.5 °C during heating and ±0.7 °C during active cooling cycles. An over-temperature alarm and built-in self-diagnosis function alert operators to out-of-range conditions before they affect sample integrity. The color LCD backlight display provides a clear, real-time readout of all operational parameters.

Multi-Segment Programmable Profiles

The SPLT supports up to 30 programmable segments arranged across 99 repeatable cycles, allowing researchers to design complex thermal profiles — including ramp-and-soak sequences, step gradients, and multi-phase incubation — without manual intervention. A reservation function (0–9999 min) allows delayed start scheduling, and a timer function (0–9999 min/h) governs total run duration. This programmability is particularly useful for protocols in biochemical and pharmaceutical research that require tightly defined temperature histories.

Centrifugal Fan Air Circulation

A centrifugal fan with 6-stage speed regulation circulates conditioned air uniformly throughout the working chamber. This forced-convection approach achieves a temperature uniformity of ±1.0 °C at 37 °C for models up to 400 L, and ±1.5 °C for the 800 L model. Users can adjust fan speed to match the airflow sensitivity of their samples — lower speeds for fragile cultures, higher speeds for rapid temperature equilibration after door opening. The imported compressor unit operates with low acoustic output and consistent thermal performance across the full duty cycle.

Access Control and Data Protection

A screen lock timer and password-protected screen saver prevent unauthorized or accidental parameter changes during active runs — a practical safeguard in multi-user laboratory environments. A mechanical door lock provides physical security

for the working chamber. The power recovery function retains all programmed data and run-state information when power is interrupted, ensuring that no incubation data or program configurations are lost during electrical events.

TECHNICAL SPECIFICATIONS

Stable Performance Low Temperature Incubator – ToronCubator™ SPLT Technical Specifications

Parameter	ToronCubator™ SPLT 100	ToronCubator™ SPLT 150	ToronCubator™ SPLT 250	ToronCubator™ SPLT 400	ToronCubator™ SPLT 800
Chamber Volume	100 L	150 L	250 L	400 L	800 L
Type	Biochemical Incubator				
Temperature Range	4–70 °C				
Temperature Resolution	0.1 °C				
Temp. Fluctuation (Heating)	±0.5 °C				
Temp. Fluctuation (Cooling)	±0.7 °C				
Temp. Uniformity at 37 °C	±1.0 °C				±1.5 °C
Rated Power	1000 W	1000 W	1100 W	1350 W	2000 W
Timer Range	0–9999 min/h				
Reservation Range	0–9999 min				

Parameter	ToronCubator™ SPLT 100	ToronCubator™ SPLT 150	ToronCubator™ SPLT 250	ToronCubator™ SPLT 400	ToronCubator™ SPLT 800
Internal Dimensions W×D×H	490×390×610 mm	510×390×760 mm	510×450×1090 mm	600×640×1050 mm	1220×585×1123 mm
Housing Dimensions W×D×H	630×680×1250 mm	650×680×1400 mm	650×740×1726 mm	745×930×1695 mm	1503×910×1820 mm
Shelves (Standard / Max.)	2 / 4	3 / 5	4 / 7	4 / 7	6 / 12
Load per Shelf	15 kg				
Net Weight / Gross Weight	91 / 109 kg	103 / 119 kg	120 / 150 kg	150 / 182 kg	286 / 342 kg
Package Size W×D×H	730×820×1440 mm	750×820×1590 mm	750×880×1910 mm	890×1120×1880 mm	1640×1090×2040 mm
Voltage	220V / 50Hz (110V is also available)				

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